What is Claimed is:

1. A method for storing a trajectory of tracked objects in a video, comprising the steps of:

(a) identifying objects in a first video frame;

(b) determining first reference coordinates $(xref_i, yref_i)$ for each of said objects identified in step (a) in the first video frame;

(c) storing the first reference coordinates $(xref_i, yref_i)$;

(d) identifying said objects in a second video frame;

(e) determining current reference coordinates $(xnew_i ynew_i)$ of said objects in said second video frame; and

(f) storing the current reference coordinates of a particular object in an object trajectory list and replacing the first reference coordinates $(xref_i, yref_i)$ with the current reference coordinates $(xnew_i ynew_i)$ if the following condition for the particular object is satisfied:

$$\| (xnew_i, ynew_i) - (xref_i, yref_i) \|^2 \geq \varepsilon,$$

wherein ε is a predetermined threshold amount, and

retaining the first reference coordinates ($xref_i$,$yref_i$) for comparison with subsequent video frames when said condition is not satisfied.

2. The method according to Claim 1, further comprising:

(g) repeating steps (e) and (f) for all video frames subsequent to said second video frame in a video sequence so as to update the storage area with additional coordinates and to update the current reference coordinates with new values each time said condition in step (f) is satisfied.

3. The method according to Claim 1, wherein when said condition step (f) is not satisfied, storing the current coordinates of the particular object as final coordinates of a final frame of said subsequent video frames in the video sequence.

4. The method according to Claim 1, further comprising:

although said condition in step (f) has not been satisfied, storing the current coordinates as final coordinates before the particular object disappears and a trajectory ends from the subsequent video frames in the video sequence.

5. The method according to Claim 1, wherein the object trajectory list for the particular object stored in step (f) comprises a temporary memory of a processor, and

(h) writing the object trajectory list to permanent storage from all the coordinates stored in the temporary memory after all the frames of the video sequence have been processed by steps (a) to (g).

6. The method according to Claim 5, wherein the permanent storage comprises at least one of a magnetic disk, optical disk, magneto-optical disk, and tape.

7. The method according to Claim 5, wherein the permanent storage is arranged in a network server.

8. The method according to Claim 1, wherein determination of the current reference coordinates ($xnew_i$,$ynew_i$) in step (e) includes size tracking of the objects moving one of (i) substantially directly toward, and (ii) substantially directly away from a camera by using a box bounding technique.

9. The method according to Claim 2, wherein determination of the current reference coordinates ($xnew_i$,$ynew_i$) in step (e) includes size tracking of the objects moving one of (i)

substantially directly toward, and (ii) substantially directly away from a camera by using a box bounding technique.

10. The method according to Claim 5, wherein determination of the current reference coordinates ($xnew_i$,$ynew_i$) in step (e) includes size tracking of the objects moving one of (i) substantially directly toward, and (ii) substantially directly away from a camera by using a box bounding technique.

11. The method according to Claim 8, wherein the box bounding technique comprises:

(i) determining a reference bounding box (w_{ref},h_{ref}) of the particular object, wherein w represents a width, and h represents a height of the particular object;

(ii) storing a current bounding box (w_i,h_i) if either of the following conditions in substeps (ii) (a) and (ii) (b) are satisfied:

(ii) (a) $|w_i - wref_i| > \delta_w$;

(ii) (b) $|h_i - href_i| > \delta_h$.

12. The method according to Claim 8, wherein the determination of whether current reference coordinates has

reached a threshold ε includes a combining of the box bounding technique and differences in ($xnew_i$,$ynew_i$) and ($xref_i$, $yref_i$).

13. The method according to Claim 10, wherein the box bounding technique comprises:

(i) determining a reference bounding box (w_{ref},h_{ref}) of the particular object, wherein w represents a width, and h represents a height of the particular object;

(ii) storing a current bounding box (w_i,h_i) if either of the following conditions in substeps (ii) (a) and (ii) (b) are satisfied:

(ii) (a) $|w_i - wref_i| > \delta_w$;

(ii) (b) $|h_i - href_i| > \delta_h$.

14. The method according to Claim 11, wherein the box bounding technique comprises:

(i) determining a reference bounding box ($wref_i$,$href_i$) of the particular object, wherein w represents a width, and h represents a height of the particular object;(ii) storing a current bounding box (w_i,h_i) if either of the following conditions in substeps (ii) (a) and (ii) (b) are satisfied:

(ii) (a) $|w_i - wref_i| > \delta_w$;

(ii) (b) $|h_i - href_i| > \delta_h$.

15. The method according to Claim 9, wherein the box bounding technique comprises:

(i) determining an area $a = wref_i * href_i$ of a reference bounding box ($wref_i$,$href_i$) of the particular object, wherein w represents a width, and h represents a height of the particular object; and

(ii) storing coordinates of a current bounding box (w_i,h_i) if a change in area δ_a of the current bounding box is greater than a predetermined amount.

16. The method according to Claim 10, wherein the box bounding technique comprises:

(i) determining an area $a = wref_i * href_i$ of a reference bounding box ($wref_i$,$href_i$) of the particular object, wherein w represents a width, and h represents a height of the particular object; and

(ii) storing coordinates of a current bounding box (w_i,h_i) if a change in area δ_a of the current bounding box is greater than a predetermined amount.

17. The method according to Claim 11, wherein the box bounding technique comprises:

(i) determining an area $a = wref_i * href_i$ of a reference bounding box (w_i, h_i) of the particular object, wherein w represents a width, and h represents a height of the particular object; and

(ii) storing coordinates of a current bounding box (w_i, h_i) if a change in area δ_a of the current bounding box is greater than a predetermined amount.

18. The method according to Claim 1, wherein the predetermined threshold amount ε of the particular object is dynamically computed according to one of average object velocity, size of the particular object, and designation of a degree of importance of the particular object.

19. A system for storage of the trajectory of tracked objects in a video, comprising:

a processor;

a video input for providing images to the processor;

a video content analysis module for tracking coordinates of objects in the images provided to the processor; and

means for storage of object trajectories;

wherein the video content module assigns a reference coordinate value to each object identified in a first reference

frame of the images, and updates the reference coordinate value to a value of a subsequent frame only when an amount of motion of the object in the subsequent frame relative to the first frame exceeds a threshold from the reference coordinate value.

20. The system according to claim 19, wherein the video content analysis module initiates storage of the reference coordinates of the subsequent frame as part of a trajectory path of the motion of the particular object.

21. The system according to claim 19, wherein the video content module includes a box-bounding function for identifying a width and height of the particular objects.

22. The system according to claim 21, wherein the video content analysis module updates reference coordinates when a predetermined change in one of size and area of the particular object has been detected by the box bounding.

23. The system according to Claim 19, wherein the video input comprises a camera.

24. The system according to Claim 19, wherein the video input comprises one of a video server, digital video disk, and videotape.

25. A method for storing a trajectory of tracked objects in a video, comprising the steps of:

(a) identifying objects in a first video frame;

(b) determining first reference coordinates $(xref_i, yref_i)$ for each of said objects identified in step (a) in the first video frame;

(c) storing the first reference coordinates $(xref_i, yref_i)$;

(d) identifying said objects in a second video frame;

(e) determining current reference coordinates $(xnew_i ynew_i)$ of said objects in said second video frame; and

(f) storing the current reference coordinates of a particular object in an object trajectory list and replacing the first reference coordinates $(xref_i, yref_i)$ with the current reference coordinates $(xnew_i ynew_i)$ if the following condition for the particular object is satisfied:

$$|xnew_i - xref_i| + |ynew_i - yref_i| \geq \varepsilon \ ;$$

wherein ε is a predetermined threshold amount, and

retaining the first reference coordinates ($xref_i$,$yref_i$) for comparison with subsequent video frames when said condition is not satisfied.